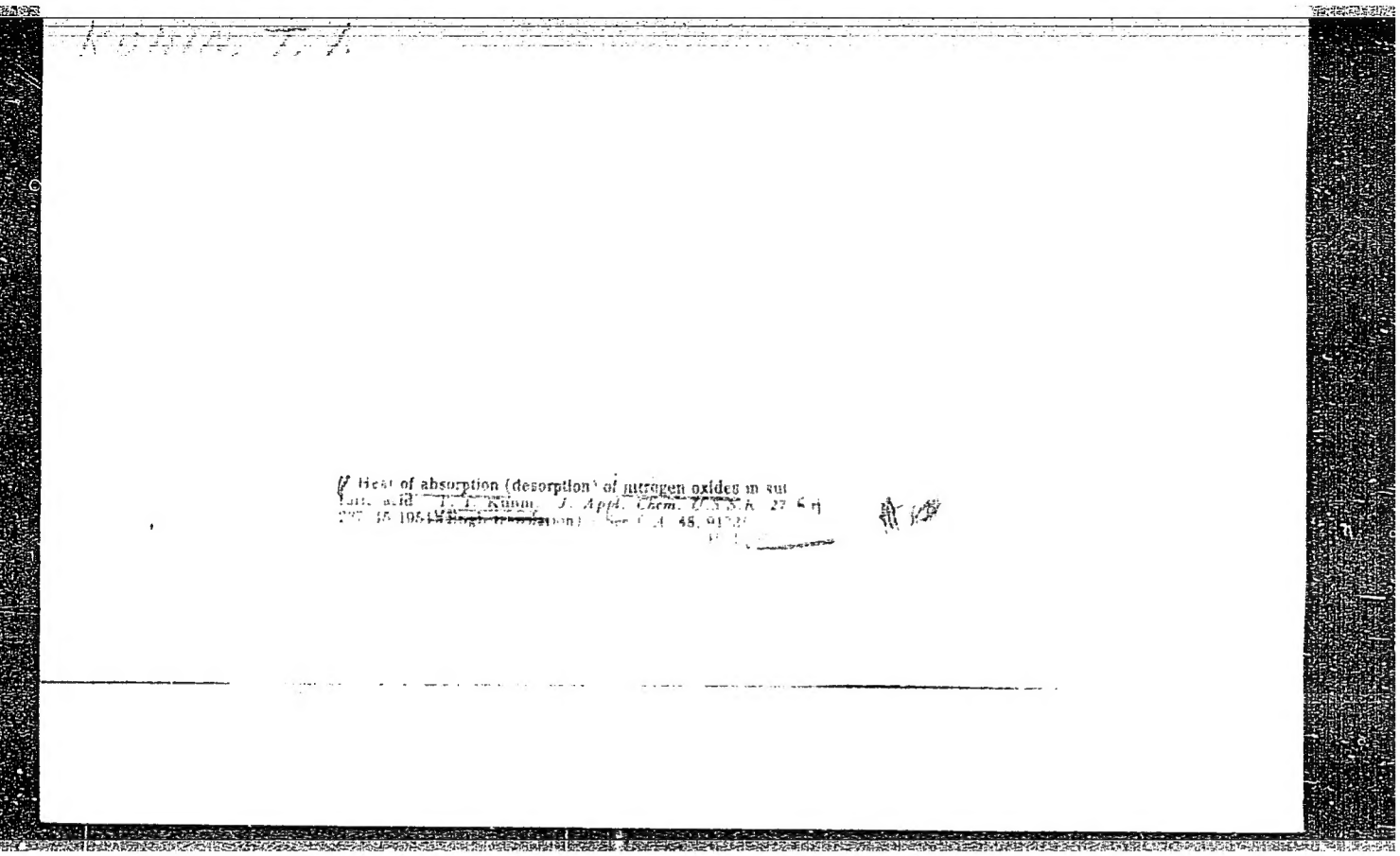

Heat of absorption (desorption) of nitrogen oxides in sul
[illegible] acid [illegible] Kuhni, *J. Appl. Chem. U.S.S.R.* 27 [illegible]
[illegible] 15 1954 [illegible] [illegible] *C.A.* 48, 9127

USSR/Chemical Technology - Chemical Products and Their Applications, Mineral Salts. Oxides. Acids. Bases. I-6

Abs Jour : Ref Zhur - Khimiya, No 3, 1957, 8788

Author : Kunin, T.I.
Inst : Ivanovsk Chemical Engineering Institute
Title : Decomposition of Rongalite During Storage.

Orig Pub : Tr. Ivanovsk. khim.-tekhnol. in-ta, 1956, No 5, 90-96.

Abstract : The causes for the decomposition of rongalite (R) stored in hermetically sealed drums, in an atmosphere saturated with water vapor and in open vessels have been investigated. R crystal samples of the following compositions were investigated: $NaHSO_2 \cdot CH_2O \cdot 2H_2O$, $NaHSO_2 \cdot CH_2O$, as well as molten ($NaHSO_2 \cdot CH_2O \cdot 2H_2O$) and mixed ($nNaHSO_2 \cdot CH_2O \cdot mNaHSO_3 \cdot CH_2O \cdot 2H_2O$). The results from the experiments have

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USSR/Chemical Technology - Chemical Products and Their Applications, Mineral Salts. Oxides. Acids. Bases. I-6

Abs Jour : Ref Zhur - Khimiya, No 3, 1957, 8788

shown that the moisture content of the surrounding medium and the amount of combined water present in the product have a decisive effect on the rate of decomposition of R. Anhydrous R which is most stable under normal conditions showed the least decomposition, whereas the dihydrate of R decomposes with the evolution of water of crystallization; the latter has a catalyzing effect on the decomposition. The dihydrate of R absorbs moisture when the relative humidity of the surrounding medium exceeds 60%; when the relative humidity is less than 60%, R remains dry and does not decompose. In order to decrease the loss cuased by decomposition, the production of anhydrous R and its storage in hermetically sealed drums are recommended.

Card 2/2

USSR/Chemical Technology - Chemical Products and Their Applications, Mineral Salts. Oxides. Acids. Bases. I-6

Abs Jour : Ref Zhur - Khimiya, No 3, 1957, 8787

Author : Kunin, T.I., and Vlasyuk, M.A.
Inst : Ivanovsk Chemical Engineering Institute
Title : Partial Pressure of Water Vapor Over Rongalite.

Orig Pub : Tr. Ivanovsk. khim.-tekhnol. in-ta, 1956, No 5, 97-102.

Abstract : Data on the partial pressure of water vapor over rongalite (R) are important for a clear understanding of the causes of the increased rate of decomposition of R in a moist atmosphere and for the production of an anhydrous product. The partial pressure of water vapor over R has been measured at 15-96°. At temperatures under 50° a differential tensometer was used in the measurements. At temperatures above 65° a method based on the determination of the boiling point of R was used. An approximate equation is given for the determination of the partial pressure of water vapor over R: log R 8.26 - 2125/T [sic].

Card 1/1

5(1)
AUTHORS: Kunin, T. I., Nikitin, V. A. SOV/153-58-3-17/30

TITLE: Thermographic Investigation of the Reduction Process of Sodium Sulfate (Termograficheskoye issledovaniye protsessa vosstanovleniya sul'fata natriya)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp 93 - 99 (USSR)

ABSTRACT: At present, sodium sulfate is reduced by solid reducing agents at 850 - 1100°. The main mass of the sulfate is reduced in the melt. Its reduction is, however, also possible at temperatures considerably below the melting point. The sodium sulfide formed can form a eutectic with the sulfate, the melting point of which is at 650 - 750°. Thus, the liquid phase, which under certain conditions promotes the acceleration of the process, can also be obtained at lower temperatures. The decrease in temperature of the sulfate reduction can be of great practical importance: a) For saving fuel. b) For decreasing foreign additions, and c) For increasing the life of the refractory material in the reaction furnaces. The optimum temperatures of the reduction process can be chosen on the basis of thermographic investi-

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gations. The problem of the initial temperatures of the sulfate reduction by pit coal remained unexplained, apart from single hints at working conditions (Refs 6 - 8). The thermographic method of determining the beginning of the Na_2SO_4 reduction process applied by the authors makes the clarification of the effect of the degree of dispersion upon the temperatures mentioned with sufficient accuracy possible. The self-levelling mirror galvanometer of the type "FI", system A. V. Ulitovskiy was used for the measurement of the temperature difference in the sample. Based on the results obtained, the authors arrive at the following conclusions: 1.-The thermographically determined temperature of the beginning reduction of sodium sulfate was: a) through the coal of the type "Antratait" 760°, b) through coal of the type "RZh" it was 720°. The decreased temperature in the latter case is explained by the catalytic effect of small amounts of sodium sulfide that had been formed by the volatile carbon components due to the reduction. 2.-It was proved that the fineness of the coal grinding decreases the temperature of

Thermographic Investigation of the Reduction Process of Sodium Sulfate SOV/153-58-3-17/30

the reaction beginning . This is explained by the authors by the change of the isochor-isotherm potential in the coal dispersion. 3.-The reduction process of sodium sulfate by pit coal takes place under an absorption of heat. There are 3 figures and 19 references, 17 of which are Soviet.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut (Ivanovo Institute of Chemical Technology). Kafedra obshchey khimicheskoy tekhnologii (Chair of General Chemical Technology)

SUBMITTED: September 10, 1957

Card 3/3

5(1, 2, 3)

AUTHORS: Kunin, T. I., Nikitin, V. A. SOV/153-58-5-10/28

TITLE: On the Problem of the Reduction of Sodium Sulfate by Peat (K voprosu o vosstanovlenii sul'fata natriya torfom)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 5, pp 61-64 (USSR)

ABSTRACT: As most substances are too expensive (some gases) for the reduction of sodium sulfate to the sulfide, or their use is connected with difficulties concerning the apparatus employed, the least expensive suitable substance for this purpose - peat - is interesting. Its deposits are found in many areas of the USSR. The difficulties hitherto existing in the utilization of peat for this purpose were the fact that peat as the lighter substance appeared on the surface of the mass and burned. When briquetting the charge this process should be excluded. Although the organic substance in peat contains about 56% carbon and 7% hydrogen (Ref 5) the whole carbon can be used in the Na_2SO_4 reduction, due to high yields of volatile components. These volatile components as a whole consist of H_2, CH_4 and CO and could act as reducing agents themselves.

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The problem is made more complicated by the relative low temperature of peat pyrolysis. Taking into account that H_2 and CH_4 contents in volatile gases of peat increase at higher temperatures, and that the beginning of the Na_2SO_4 reduction by H_2 and CH_4 is at 500-550°, it may be maintained that part of the volatile substances is utilized in the reduction process. With peats from deep moors a certain increase of the pyrolysis temperature may be expected (Ref 8). As there are no data in publications the present special investigation was carried out. Figure 1 shows the experimental results (I series) which were to explain the effect of the peat mass upon the completeness of the reduction of sodium sulfate. The experiments were carried out in a nitrogen atmosphere. The curves obtained (Fig 1) show a maximum dependent upon the peat mass in the charge, and which corresponds to the ratio of the weights of peat: sulfate = 1 : 1,6. With a larger amount of peat the thermal conductivity of the briquette is expected to decrease rapidly. This will cause the rate of the process to decrease,

On the Problem of the Reduction of Sodium Sulfate by Peat

as the reactions themselves require heat addition. Curves of figure 2 show the results of the comparative experiments with peat and coal as reducing agents (II series). The rate of the reduction by peat is at 750 and 800° considerably higher than by coal (anthracite). Since under the conditions of practical work always a certain amount of air enters the reaction space the above-mentioned regularities may change there. Figure 3 shows results of the experiment with a certain amount of air penetrating to the briquettes (at a ratio of Na_2SO_4 : peat = = 1 : 2.4). The degree of reduction was then lower than without oxygen entering. From the curves in figures 2 and 3 it may be seen that oxygen addition has a higher influence upon the reduction of peat than of coal. From all experiments it may be seen that inspite of the high degree of reduction no melting of the briquettes occurs if the amount of peat does not exceed 1.6 g per 1 g Na_2SO_4. Mixtures from pit coal and peat or another substance with a higher yield of volatile substances than of coal would offer good prospects. Table (p 63) shows the effect of the volatile substances from peat upon the rate of reduction of Na_2SO_4 at 700°. Anthracite did in this case not

On the Problem of the Reduction of Sodium Sulfate by Peat

reduce Na_2SO_4. Only a partial substitution of anthracite by peat led to the formation of certain amounts of Na_2S. Iron oxide increases these amounts. There are 3 figures, 1 table, and 10 references, 8 of which are Soviet.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut, Kafedra obshchey khimicheskoy tekhnologii (Ivanovo Chemo-Technological Institute, Chair of General Chemical Technology)

SUBMITTED: November 22, 1957

S/153/60/003/02/21/034
B011/B006

5.1000(A)

AUTHORS: Kunin, T. I., Nikitin, V. A.

TITLE: Utilization of Sodium Thiosulfate in Waste Water of Several Plants

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1960, Vol. 3, No. 2, pp. 324-329

TEXT: The waste water of several plants which produce semiproducts and dyes contain large quantities of valuable sulfur-containing salts, which contaminat the waters. The authors investigated methods for the utilization of waste water of the productions of α-naphthylamine and the dye "Fur Black" (mekhovoy chernyy), with a view to utilizing the sulfur as quantitatively as possible without appreciable amounts escaping into the atmosphere. Sodium salts of various sulfur-containing acids which can be transformed to sodium sulfite are contained in the above-mentioned waste water. Organic compounds contained in these waste decompose at the temperatures employed for the reduction (850-1100 °C), so that contamination of the

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Utilization of Sodium Thiosulfate
in Waste Water of Several Plants

S/153/60/003/02/21/034
B011/B006

reaction product does not occur. The decomposition products also have a reducing effect and lower the amount of reducing agent required. The authors used several samples of thiosulfate (the term used to denote the evaporated waste water residues). The analytical data of these samples are given in Table 1. Anthrazite was applied as reducing agent. Both the thiosulfate and coal were finely ground. The tests were carried out in dry N atmosphere which was free of oxygen. The authors found that the thermal treatment of sodium thiosulfate from waste water of the above-mentioned plants is possible without losing appreciable amounts of sulfur due to vaporization. The effect of the temperature on the reduction of thiosulfate from the α-naphthylamine production is illustrated in Table 2. Sodium sulfide formation increases somewhat with a rise in temperature. Sulfur losses during reduction amount to about 50%. Polysulfides are largely decomposed at reduction temperatures, as was proved by the authors' experiments using anthracite at 750°C (see Fig. on p.326). For reduction of thiosulfates containing no basic substances, it is adviced to admix the charge with industrial soda or caustic soda. Basic waste water is particulary suitable for this purpose. Reduction data of thiosulfate containing admixtures (NaOH, Na_2CO_3, NaCl) are shown in

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Utilization of Sodium Thiosulfate
in Waste Water of Several Plants

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B011/B006

Table 4. An admixture of the two first-mentioned substances rapidly increases the formation of sulfide sulfur and considerably decrease vaporization losses of sulfur, particularly at 850°C. NaCl does not promote sulfide formation, but accelerates the melting process and reduces sulfur losses by about 1/2. In Table 5, the reduction data of a 1:1 mixture of the thiosulfates from the waste of the two first-mentioned plants are listed. This procedure increased the yield of sulfur. On reducing thiosulfate with coal, sodium polysulfides are hardly contained in the melt. The decomposition occurs during the reduction and is all the more complete, the higher the temperature and the longer the time of reduction. The authors mention R. I. Levenzon, V. V. Kafarov, Ya. S. Demikhovskiy, I. P. Yermolayev, G. P. Luchinskiy, M. I. Popov, V. S. Kaminskiy, V. A. Seredkina, N. N. Polyakov, A. F. Lozhkin, Z. S. Bannykh, Ye. M. Polyakova. The experiments were carried out in collaboration with V. A. Gnedina and N. A. Gerasimova. There are 1 figure, 5 tables, and 15 references, 9 of which are Soviet.

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Utilization of Sodium Thiosulfate in Waste Water of Several Plants

S/153/60/003/02/21/034
B011/B006

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut; Kafedra obshchey khimicheskoy tekhnologii (Ivanovo Institute of Chemical Technology, Chair of General Chemical Technology)

SUBMITTED: September 11, 1958

Card 4/4

S/063/60/005/003/008/011/XX
A051/A029

AUTHORS: Nikitin, V.A., Kunin, T.I.

TITLE: On the Mechanism of Sodium Sulfate Reduction With Carbon

PERIODICAL: Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva im. D.I. Mendeleyeva, 1960, Vol. 5, No. 3, pp. 350-352

TEXT: The reduction process of Na_2SO_4 to Na_2S with solid carbon takes place according to some authors (Refs. 1-4) by the following reactions:

$$Na_2SO_4 + 2C = Na_2S + 2CO_2 \quad (1)$$
$$Na_2SO_4 + 4C = Na_2S + 4CO \quad (2)$$
$$Na_2SO_4 + 4CO = Na_2S + 2CO_2 \quad (3)$$

The possibility of all three reactions taking place is assumed, depending on the conditions of the reduction process. It is considered that the main portion of the sodium sulfide is formed in reaction (1), since the escaping

On the Mechanism of Sodium Sulfate Reduction With Carbon

gases contain little carbon monoxide (Refs 2,4). Since the equilibrium in the reaction $CO_2 + C \rightleftarrows 2CO$ (4) at reduction temperatures of 850-1,100°C is shifted into the direction of the carbon monoxide formation, the possibility of the reduction of sodium sulfate according to Equation (3) is not excluded. Reaction (1) is most probable according to Ref 4, where the thermodynamic analysis of the main reactions of the process was studied up to 700°C. At higher temperatures reaction (2) should predominate. According to some investigators the reaction of Na_2S formation is a step-like process passing through the stage of sodium sulfite formation, which later decomposes to Na_2O and SO_2. Experimentally it was shown (Ref. 5) that at reduction temperatures pure sodium sulfite decomposes according to the reaction $4Na_2SO_3 = Na_2S + 3Na_2SO_4$ (5), whereby it is noted that at the given temperatures the decomposition of Na_2SO_3 with the formation of Na_2O and SO_2, contrary to the opinion of Tammann and Ölsen (Ref. 6), hardly takes place at all. The authors of the present article conducted kinetic experiments with the purpose of clarifying the ratio between the reduction and

On the Mechanism of Sodium Sulfate Reduction With Carbon

decomposition of the sulfite. Fig. 1,2 give the results of the reduction and decomposition of Na_2SO_3. The initial products were "Photo" grade sulfite and charcoal from sugar. The experiments were conducted at 650 and 700°C in a nitrogen atmosphere. The rate constants were calculated from the results and also the activation energies of decomposition and reduction of the sodium sulfite. It was established that the decomposition of the sodium sulfite is a reaction of the first order. The calculated activation energy for the decomposition process of the Na_2SO_3 was found to be equal to 80.2 kcal/mole. Fig. 1 and 2 show that the transformation process of Na_2SO_3 is noticeably accelerated with the introduction of a reducing agent. The large quantities of sulfur found in the batch decrease with an increase in the duration of the experiments. The analysis of the experimental data showed that the transformation of the sulfite in the presence of carbon follows the kinetics of a second-order reaction. The activation energy is hereby lowered to 53.1 kcal/mole. The drop in the activation energy and the change in the reaction order is explained by the change in the mechanism of the process and

S/063/60/005/003/008/011/XX
A051/A029

On the Mechanism of Sodium Sulfate Reduction With Carbon

by the catalysis of decomposition of the sulfite with carbon. The authors also conducted a thermographic investigation of the behavior of the pure sulfite and sulfite with a reducing agent, in order to establish the true cause for the change in the activation energy. Fig. 3 and 4 show the results of these investigations. The thermograms were taken with a MK-56 (PK-56) Kurnakov pyrometer. The minimum on the differential curve, corresponding to 770°C, is explained by the melting process of the decomposition products. In the presence of a reducing agent an exothermal and endothermal effect is noted on the differential curve (Fig. 4, curve 2), which are explained by the decomposition reaction of the sulfite and the melting of the batch, respectively. It is assumed that carbon catalyzes the decomposition reaction of the sodium sulfite and lowers the temperature of the beginning of the reaction, which is seen from Fig. 4. Work was further carried out by the authors on the effect of the pressure in the briquetting of the batch on the rate of reduction of the sodium sulfate, in order to clarify the role played by the gas phase in the reduction process. Experiments were conducted with

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On the Mechanism of Sodium Sulfate Reduction With Carbon

chemically pure Na_2SO_4 at a constant temperature and duration in a nitrogen atmosphere. Coal with a low yield of volatile substances (anthracite) was used as the reducing agent. Sulfate and coal were ground to the fraction 0.125-0.21 mm. Fig. 5 is the obtained relationship curve. Experiments were conducted at relatively low temperatures (750°C) at a low content of Na_2S in the melt to avoid melting. The reduction time in all the experiments was 30 min and the maximum degrees of reductions did not exceed 50%. It was shown that there is no limiting role of the gas phase in the formation process of the sodium sulfite. It is stated that part of the Na_2SO_4 is reduced by the gaseous reducing agent, including carbon monoxide, but the entire process does not take place according to only one equation (3). The authors conclude that the reduction reaction of sodium sulfate with carbon is a complex heterogeneous autocatalytic process. The first quantities of sodium sulfite are formed as a result of the reduction of Na_2SO_4 by the volatile components, separating out in the heating of carbon (H_2, CH_4, CO, etc.), or by carbon monoxide. The reduction of Na_2SO_4 takes place through the

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S/063/60/005/003/008/011/XX
A051/A029

On the Mechanism of Sodium Sulfate Reduction With Carbon

formation of sodium sulfite with its subsequent decomposition to Na_2S and Na_2SO_4. Sodium sulfite which is formed catalyzes the reduction reaction of Na_2SO_4 with carbon. There are 5 graphs, 5 equations and 7 references: 6 Soviet, 1 German.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut (Ivanovo Institute of Chemical Technology)

SUBMITTED: November 23, 1959

Card 6/10

S/063/60/005/003/006/011/XX
A051/A029

On the Mechanism of Sodium Sulfate Reduction With Carbon

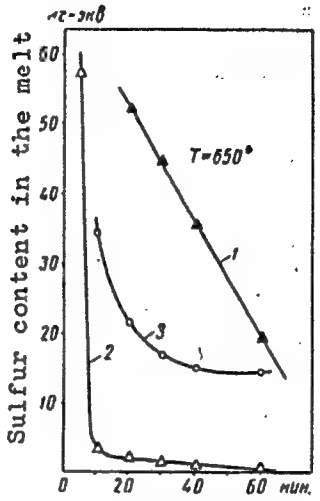

Figure 1:

Sulfur content depending on the duration of calcination. T = 650°C.

1.– in the form of sodium sulfite in the absence of carbon; 2.– in the form of sodium sulfite in the presence of carbon; 3.– in the form of sodium sulfate in the presence of carbon.

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S/063/60/005/003/008/011/XX
A051/A029

On the Mechanism of Sodium Sulfate Reduction With Carbon

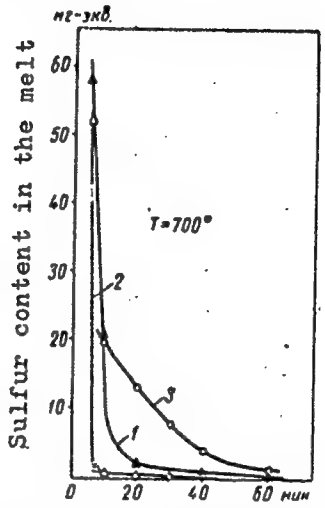

Figure 2:

Sulfur content depending on the duration of calcination. T = 700°C.

1.– in the form of sodium sulfite in the absence of carbon; 2.– in the form of sodium sulfite in the presence of carbon; 3.– in the form of sodium sulfate in the presence of carbon.

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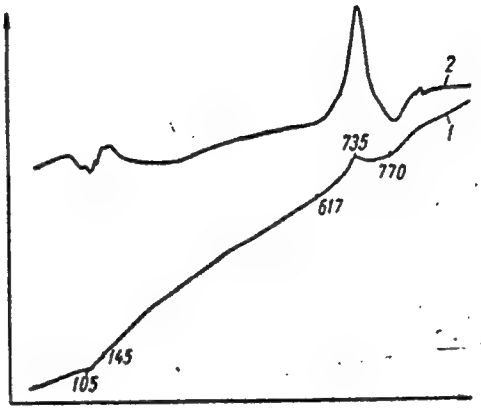
A051/A029

On the Mechanism of Sodium Sulfate Reduction With Carbon

Figure 3:

Thermogram of sodium sulfite of "photo" grading:

1.- plain recording 2.- differential recording



Card 9/10

S/063/60/005/003/008/011/XX
A051/A029

On the Mechanism of Sodium Sulfate Reduction With Carbon

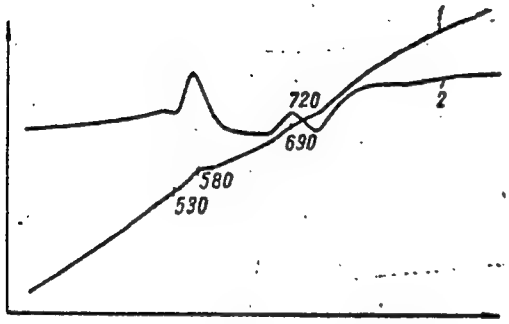


Figure 4: Thermogram of sodium sulfite in the presence of carbon: 1.- plain recording 2.- differential recording

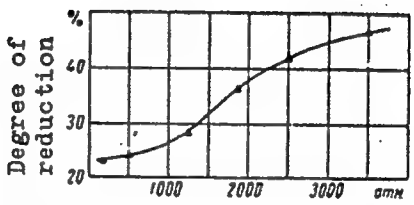


Figure 5:

The effect of the briquetting pressure on the degree of reduction of sodium sulfate with carbon.

Card 10/10

KUNIN, T.I.; VLASYUK, M.A.

Use of a vibrating mill for the production of rongalite. Izv.vys.-ucheb.zav.;khim.i khim.tekh. 4 no.4:636-638 '61. (MIRA 15:1)

1. Ivanovskiy khimiko-tekhnologicheskiy institut, kafedra obshchey khimicheskoy tekhnologii.

(Sodium formaldehydesulfoxylate)

KUNIN, T.I.; YEPIFANOV, V.S.

Interaction of sodium carbonate with sulfur dioxide in a fluidized bed. Izv.vys.ucheb.zav.; khim.i khim.tekh. 4 no.6:992-997 '61. (MIRA 15:3)

1. Ivanovskiy khimiko-tekhnologicheskiy institut, kafedra obshchey khimicheskoy tekhnologii.
(Sodium carbonate) (Sulfur dioxide) (Fluidization)

KUNIN, T.I.; SHUTOV, A.A.; PANKRATOVA, L.I.

Specific heats of aqueous solutions of sulfuric acid and nitric acid mixtures. Zhur. prikl. khim. 34 no.2:451-454 F '61. (MIRA 14:2)

(Sulfuric acid) (Nitric acid)
(Heat capacity)

YEPIFANOV, V. S.; KUNIN, T. I.

Kinetics of interaction between sodium bicarbonate and sulfur dioxide. Izv. vys. ucheb. zav.; khim. i khim. tekhn. 5 no.5:770-774 '62. (MIRA 16:1)

1. Ivanovskiy khimiko-tekhnologicheskiy institut, kafedra obshchey khimicheskoy tekhnologii.

(Sodium carbonates) (Sulfur dioxide)

S/153/62/005/006/002/015
E071/E333

AUTHORS: Yepifanov, V.S. and Kunin, T.I.

TITLE: Thermal stability of sodium pyrosulfite

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Khimiya i khimicheskaya tekhnologiya, v. 5, no. 6, 1962, 864 - 870

TEXT: Thermal stability of sodium pyrosulfite in the temperature range 30 - 300 °C was studied in order to find the optimum conditions for industrial drying of this salt. It was shown that in an atmosphere of a gas free from sulfur dioxide a noticeable decomposition of the salt began at 110 °C. The decomposition proceeded to sulfur dioxide and sodium sulfite up to 150 °C. Above this temperature the decomposition proceeded according to a complex scheme, with a considerable amount of sodium sulfate in the decomposition products. In this case the humidity of the atmosphere accelerated the decomposition process of sodium pyrosulfite, partially hydrolyzing to bisulfite. The thermal stability of the pyrosulfite was somewhat increased in an atmosphere of gas containing 7.5% sulfur dioxide. Decomposition

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started at 150 °C, according to a complex scheme, leading to the formation of a considerable proportion of sulfate. The humidity of this atmosphere had no influence on the decomposition of sodium pyrosulfate. The partial pressure of sulfur dioxide over sodium pyrosulfite was determined. In the temperature range up to 140 °C the pressure of sulfur dioxide over pyrosulfite in an atmosphere of a moist gas was higher than over pyrosulfite in an atmosphere of a dry gas. The possibility of an intensification of the drying process of sodium pyrosulfite by conducting it at temperatures up to 140 °C in an atmosphere of a gas containing 6.5 - 15% sulfur dioxide was demonstrated. There are 4 figures and 3 tables.

ASSOCIATION: Kafedra obshchey khimicheskoy tekhnologii, Ivanovskiy khimiko-tekhnologicheskiy institut (Department of General Chemical Technology, Ivanovo Institute of Chemical Technology)

SUBMITTED: November 14, 1961

YEPIFANOV, V.S.; KUNIN, T.I.

Preparation of anhydrous sodium sulfite by the dry method in an apparatus with a fluidized bed. Izv.vys.ucheb.zav.;khim.i khim.tekh. 6 no.1:106-110 '63. (MIRA 16:6)

1. Ivanovskiy khimiko-tekhnologicheskiy institut, kafedra obshchey khimicheskoy tekhnologii.

(Sodium sulfite) (Drying apparatus)

LOBANOV, Yu.A.; KUNIN, T.I.; SMIRNOVA, G.M.

Kinetics and mechanism of the decomposition of zinc hydrosulfite in aqueous solution. Izv.vys.ucheb.zav.;khim. i khim.tekh. 6 no.2:189-194 '63. (MIRA 16:9)

1. Ivanovskiy khimiki-tekhnologicheskiy institut, kafedra obshchey khimicheskoy tekhnologii.
(Dithionites) (Zinc salts)

NIKITIN, V.A.; KUNIN, T.I

Reduction of sodium sulfate with gaseous reagents. Izv.vys.ucheb. zav.;khim. i khim.tekh. 6 no.2:263-267 '63. (MIRA 16:9)

1. Ivanovskiy khimiko-tekhnologicheskiy institut, kafedra obshchey khimicheskoy tekhnologii.
(Sodium sulfates) (Reduction, Chemical)

SOLOV'YEV, B.I., KUNEN, T.I.

Effect of carriers on the activity of vanadium catalysts for sulfur dioxide oxidation. Izv. vys. ucheb. zav.; khim. i khim. tekh. 7 no.2:252-256 '64. (MIRA 18:4)

1. Ivanovskiy khimiko-tekhnologicheskiy institut, kafedra obshchey khimicheskoy tekhnologii.

KUNOV, V.

Two communists. Stroitel' 8 no.11:24-25 N '62. (MIRA 16:1)
(Sevastopol--Construction industry)

MASHKARENKO, A., inzhener-podpolkovnik; TOLSTOV, S., inzhener-podpolkovnik; KUNIN, V., inzhener-polkovnik; NETYKSA, V., podpolkovnik

Evacuation of tracklaying vehicles. Tekh. i vooruzh. no.6: 46-49 Je'64 (MIRA 17:7)

KUNIN, V.I.

Automatic accounting for production. Mashinostroitel'
no.11:2-3 '65. (MIRA 18:11)

NOVOSEL'SKIY, N.L., inzhener; KUNIN, V.M., inzhener; DROZDOV, I.IA.; KOLOMNIN, G.P., nauchnyy redaktor; KUYBYSHEVA, G.V., redaktor; LYUDKOVSKAYA, N.I., tekhnicheskiy redaktor

[Building slabs made of organic fibers] Stroitel'nye plity iz organicheskogo volokna. Moskva, Gos. izd-vo lit-ry po stroit. materialam, 1956. 328 p. (MLRA 9:10)
(Building materials) (Fibers)

KUNIN, V.; MOROZOV, I.

Rural houses with duplex apartments. Sel'.stroi. 16 no.5:26-27 My '61. (MIRA 14:6)

1. Glavnyy inzhener proyektnogo instituta Giprostandartdom (for Kunin). 2. Nachal'nik tekhnicheskogo otdela proyektnogo instituta Giprostandartdom (for Morozov).
(Apartment houses)

KUNIN, V.; KHLUDTSEV, A.; RATNER, G.

Arbolit for rural construction. Sel'. stroi. 16 no.6:21-22 Je '61. (MIRA 14:7)

1. Glvnyy inzh. Giprostandartdoma (for Kunin). 2. Nachal'nik otdela novykh stroitel'nykh materialov Giprostandartdoma (for Khludtsev).
(Lightweight concrete)

OTLIVANCHIK, A.N.; SLUCHAYEVA, L.M.; GORDEYEV, P.A., red. izd-va; KUNIN, V.M., nauchnyy red.; RUDAKOVA, N.I., tekhn. red.

[Experience with particle board for floors] Opyt primeneniia drevesno-struzhechnykh plit dlia polov. Moskva, Gosstroiizdat, 1962. 47 p. (MIRA 15:6)
(Hardboard) (Floors)

KUNIN, V.M., red.; FEL'DSHTEYN, A.M., red.

[Manufacture and use of arbolite] Proizvodstvo i primenenie arbolita. Moskva, 1962. 50 p. (MIRA 17:6)

1, Giprosel'stroy.

KHUDYAKOV, Aleksandr Vasil'yevich; KUNIN, V.M., nauchn. red.; DARMANOVA, T.I., red.

[Woodworking machinery and its operation] Derevoobrabatyvaiushchie stanki i rabota na nikh. Moskva, Vysshaia shkola, 1965. 293 p. (MIRA 18:12)

S/123/61/000/007/023/026
A004/A104

AUTHOR: Kunin, V.N.

TITLE: Machine for wire tensile tests

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 7, 1961, 28, abstract 7E249 ("Uch. zap. Chelyab. gos. ped. in-t", 1958, v. 5, no. 1, 107-109)

TEXT: The machine is intended for wire tensile tests at a constant rate and with the automatic big-scale recording of the "deformation - load" curve. The specimen is fixed in the machine clamping device. The deformation is effected by the upper clamp connected to an electromotor. The lower clamp is fastened on a force-measuring spring-mounted lever. The stress on the lever is produced by a measuring spring. In changing the spring it is possible to obtain the necessary stress diagram scale. It takes about 10 seconds to obtain the complete tension diagram. A pen records the results on a paper tape fixed to a drum which is put into operation during the motion of the measuring spring.

G. Flidlider

[Abstracter's note: Complete translation]

Card 1/1

KUNIN, V. N.: Master Phys-Math Sci (diss) -- "Changes in internal energy and the electrical properties of metal in plastic expansion". Sverdlovsk, 1959. 9 pp (Min Higher Educ USSR, Ural State U im A. M. Gor'kiy), 150 copies (KL, No 13, 1959, 99)

S/137/60/000/04/10/015

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 4, p. 254, # 8515

AUTHOR: Kunin, V.N.

TITLE: Energy Absorption by Metal in Plastic Extension

PERIODICAL: V sb.: Materialy Nauchn. konferentsii, Chelyab. in-t mekhaniz. i elektrifik. s. kh. apr. 1958, Chelyabinsk, 1959, pp. 69 - 70

TEXT: The investigation was performed with chemically pure Ag and conductor Cu. The absorbed energy was measured as the difference between the work consumed for deformation and the emitted heat. The deformation work was determined by the graphical integration of the expansion diagram. Measurement of temperature changes were carried out during the test, using a special electronic potentiometer. It was found that the percentage of absorbed energy with respect to the consumed work was higher at the initial deformation stages than during greater deformation. Changes in the electric resistivity of the specimens and the absolute thermo-emf were directly proportional to the magnitude of changes in the absorbed energy.

L. I.

/B

Card 1/1

AUTHOR: Kunin, V.N. SOV/126-7-5-24/25

TITLE: Absorption of Energy on Plastic Extension of a Metal (Pogloshcheniye energii metallom pri plasticheskom rastyazhenii)

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 7, No 5, pp 790-793 (USSR)

ABSTRACT: The author measured the energy absorbed by a metal when deformed by extension. The metals studied were conductivity copper, chemically pure silver and cadmium. Test specimens of copper were 92.2 mm long and 1.314 mm thick. Specimens of cadmium were 100 mm long and 1.641 mm thick, while those of silver were 100 mm long and 1.409 mm thick. Before testing the copper specimens were annealed in vacuum at 400 °C for 3 hours. Cadmium was annealed in water at 100 °C for 3 hours and 40 minutes. Silver was annealed in air at 400 °C for 3 hours. All samples were extended at a constant rate of 0.8 mm/sec on a special machine and the extension and load were automatically recorded. During deformation the specimen temperature was measured with a copper-constantan thermocouple as a function of time, using the electronic potentiometer EPP-09. Since the rate of deformation was constant the

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Absorption of Energy on Plastic Extension of a Metal

temperature-time curve could be easily converted into a temperature-extension curve. In order to reduce the heat loss of the specimen during deformation, it was extended in several stages in such a way that the maximum temperature rise in any stage was of the order of 2-3 °C. The work of deformation (A) is partly absorbed by the specimen in the form of lattice distortion energy (W), partly stored reversibly as the energy of elastic deformation (U), and partly evolved as heat. The rise in temperature of the sample on deformation is the resultant of two processes; heat evolution due to plastic flow and adiabatic cooling due to elastic extension. Consequently the energy absorbed by the sample (the energy of deformation of the lattice, W) can be found from:

$$W = A - U - C.m\ (\Delta T + \Delta T_U + \Delta T_Q)$$

where C and m are the heat capacity and the mass respectively of the sample, ΔT is the temperature rise recorded by the potentiometer, ΔT_U is the adiabatic cooling and ΔT_Q is the fall of temperature due to heat loss by the sample. The work of deformation A was

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Absorption of Energy on Plastic Extension of a Metal

determined by graphical integration of the extension diagram recorded by the machine referred to earlier. The elastic deformation energy was calculated from

$$U = (\sigma^2/2E)V$$

where V is the specimen volume. The value of ΔT was determined directly from the potentiometer records (Fig 2). The fall in temperature ΔT_Q due to heat loss to the ambient medium was determined by using a technique described by Bol'shanina (Ref 3). The adiabatic cooling of the sample on elastic extension ΔT_u was determined by a separate experiment under conditions as close as possible to the original conditions (Fig 3 shows the adiabatic cooling of copper as a function of applied load.) For all three metals the adiabatic cooling was 0.3-0.4 °C when the load was increased from zero to its maximum value. The results of calculations are shown in Fig 4 as plots of the energy absorbed, in cal/g, against extension in %; curves 1, 2 and 3 represent copper, silver and cadmium respectively. The largest amount of energy was absorbed by copper; it was 0.35 cal/g at 37% extension. This result is in good agreement with earlier results obtained

Absorption of Energy on Plastic Extension of a Metal

either by compression or by extension of copper (Refs 4 and 6). Fig 5 shows the ratio of the energy absorbed to the work of deformation as a function of extension; again curves 1, 2 and 3 represent copper, silver and cadmium respectively. The author draws the following conclusions from his results: (1) For the same degree of deformation the energy absorbed in straining copper, silver and cadmium is of the same order as the energy absorbed during their compression. (2) Since there is no friction at the clamps in extension tests and consequently no heat loss due to friction, the work of deformation per one g of metal is smaller in extension tests than in compression. It follows that the ratio of the energy absorbed to the work of deformation is greater in straining than in compression. (3) At the initial stages of deformation the ratio of the energy absorbed to the work of deformation is very large because a large portion of the work of deformation is used to increase the internal energy of the metal; with increase in the degree of deformation this ratio falls, first rapidly and then more slowly. (4) Before rupture a quasi-saturation state occurs which is shown as the curvature

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Absorption of Energy on Plastic Extension of a Metal

of the ends of the curves of energy absorbed (Fig 4); this is due to the fact that at rupture the energy is absorbed mainly in the "neck" portion.
There are 5 figures and 6 references, 5 of which are Soviet and 1 German.

ASSOCIATION: Chelyabinskiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva (Chelyabinsk Institute of Mechanization and Electrification of Agriculture)

SUBMITTED: February 25, 1958

66887

18.8100 SOV/126-8-1-3/25

AUTHOR: Kunin, V. N.

TITLE: Measurement of the Internal Energy, the Thermal e.m.f. and the Specific Electrical Resistance During Plastic Deformation of a Metal

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, Nr 1, pp 17-20 (USSR)

ABSTRACT: The amount of energy absorbed by a metal on plastic deformation is a measure of its deviation from the equilibrium state. It is, therefore, natural to suggest that changes in the properties of a metal in the process of plastic deformation will be connected in some way with this quantity. The number of papers published on this topic is very limited. Kunin (Ref 1) has found that in the case of copper the change in the absolute thermal e.m.f. is directly proportional to the energy absorbed by the metal. Other workers have found (Ref 2) that the specific electrical resistance for cadmium and lead deformed at low temperature increases linearly with the latent deformation energy. The present work describes the results of measurement of the absorbed energy, induced thermal e.m.f. and the change in the specific

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Measurement of the Internal Energy, the Thermal e.m.f. and the Specific Electrical Resistance During Plastic Deformation of a Metal

electrical resistance during the plastic deformation process. Experiments were carried out on a set of specimens made of copper and chemically pure silver and deformed under identical conditions. The method of measuring the absorbed energy was described by Kunin in Ref 3. The thermal e.m.f. and the specific electrical resistance were measured as follows: the initial length of the specimen was 100 mm and the initial diameter was 1.314 mm for copper and 1.409 mm for silver specimens. The deformation was carried out using the machine described by Kunin in Ref 4 and at the same rate as before. The form of the specimens is shown in Fig 1. Each specimen consisted of a deformed (A) and an undeformed (B) section. Thus the thermal e.m.f. of the deformed metal was measured relative to an identical undeformed metal. The vessel 1 contained kerosene and the vessel 2 a mixture of ice and water. The thermal e.m.f. was measured using a mirror galvanometer of type M-25. The galvanometer could be calibrated using the voltage

Measurement of the Internal Energy, the Thermal e.m.f. and the Specific Electrical Resistance During Plastic Deformation of a Metal

divider shown on the right-hand side of Fig 1. It could also be used to back-off the thermal e.m.f. The sensitivity was 0.0218 mV/mm and 0.00666 mV/mm depending on whether the thermal e.m.f. was measured directly, i.e. by measuring the deflection of the galvanometer, or whether it was measured by the compensation method. Fig 2 shows the induced thermal e.m.f. in mV/deg as a function of the absorbed energy (in cal/g) for silver. As can be seen, the relationship is linear. A similar result was obtained for copper. The slopes are 0.41 mV.g/cal.grad for silver and 0.086 mV.g/cal.grad for copper. The specific electrical resistance was measured using the circuit shown in Fig 3. The resistance was measured while the specimen was held in the machine holders 1 and 2 and was compared with the standard resistance R_3. The relation between the absorbed energy (cal/g) and the relative change in the specific electrical resistance for copper is shown in Fig 4. As can be seen, the relation is linear. The slopes are 9.5×10^{-8} ohm.cm.g/cal for copper and 18×10^{-8} ohm.cm.g/cal

66887

SOV/126-8-1-3/25

Measurement of the Internal Energy, the Thermal e.m.f. and the Specific Electrical Resistance During Plastic Deformation of a Metal

for silver.
There are 4 figures and 6 Soviet references.

ASSOCIATION: Chelyabinskiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva (Chelyabinsk Institute of Mechanization and Electrification in Agriculture)

SUBMITTED: February 23, 1958

Card 4/4

KUNIN, V.N., kand.fiz.-matem.nauk; MYSLYAYEV, V.M.

Laboratory bench for engine testing. Avt. prom. no.5:27-28 My '60.
(MIRA 14:3)

1. Chelyabinskiy institut mekhanizatsii i eletrifikatsii sel'skogo khozyaystva [ChIMESKh].
(Automobiles—Engines—Testing)

S/120/61/000/006/023/041
E032/E114

AUTHOR: Kunin, V.N.

TITLE: An apparatus for the electrodeless measurement of electrical conductivity

PERIODICAL: Pribory i tekhnika eksperimenta, no.6, 1961, 111-113

TEXT: The device described is based on the measurement of the interaction between currents induced in the specimen by a moving magnetic field with the field itself. The non-uniform magnetic field is produced by a 12-pole rotating electromagnet 1 (Fig.1), which is kept in rotation by the induction motor 2. The diameter of the magnet is 420 mm, the number of revolutions is 2180 rpm and the pole gap is 30 mm. The magnetic field is produced by two coils (main and auxiliary). The main coil is supplied by the rectifier 3 and the current through it is adjusted manually. The auxiliary coil is supplied by the rectifier 4 and is adjusted automatically so that the drag on the standard specimen remains constant. The standard specimen is made of constantan or manganese and is suspended from the

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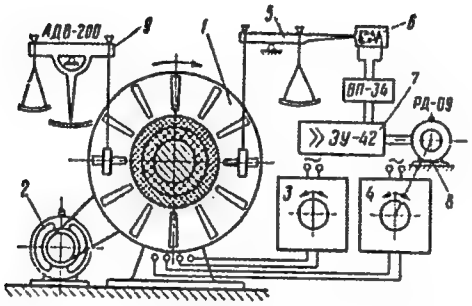
balance 5. The balance is in equilibrium if the dragging force is equal to the weight of the standard specimen minus the load at the other end of the balance. The latter carries an opaque diaphragm screen 6 with a wedge-shaped aperture cut in it. The diaphragm is located between thirteen series-connected thermocouples (copper-constantan) and a lamp. When the balance is in equilibrium the thermocouples are uniformly illuminated and there is no current in the thermocouple circuit. As soon as the equilibrium is disturbed a current appears. It is amplified by the amplifier 7, and the output of the latter operates the motor 8 which in turn adjusts the output of the rectifier 4. The specimen under investigation is suspended from the balance 9 at the centre of the magnet gap. It was found that the dragging force is directly proportional to the field strength and the angular velocity of the magnet. The electrical conductivity can be measured with an accuracy of 0.01% (relative to the standard specimen).
There are 3 figures and 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc.

An apparatus for the electrodeless.. S/120/61/000/006/023/041
E032/E114

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut
(Chelyabinsk Polytechnical Institute)
SUBMITTED: February 14, 1961

Fig.1



Card 3/3

S/032/61/027/009/013/019
B101/B110

AUTHORS: Kunin, V. N., and Grishkevich, A. Ye.

TITLE: Precision tensile testing machine for different rates and temperatures

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 9, 1961, 1162-1164

TEXT: The authors describe a 250-kg capacity machine by which tensile tests can be made on wire specimens 20-350 mm long at temperatures from -195 to +1000°C and deformation rates of 10^{-4} to 3 mm/sec. The recorded diagrams of the tension and relaxation curves are 490·500 mm with the maximum error not exceeding 0.5 %. The diagram scale may be varied between 1:100 and 1:1 along the deformation axis and between 0.02 and 0.5 kg/mm per mm diagram along the load axis. The machine is schematically shown in Fig. 1. The deformation mechanism consists of the 0.25-kw asynchronous three-phase motor 1, the gearbox 2 with the shaft 6 and the electromagnetic clutches 7, the transmission shaft 3, worm gear 9, nut 4, and screw 5. The gear ratio may be varied between 1:1 and 1:10,000. The electromagnetic clutch 8 is used for engaging the gear ratio 1:1. Shaft

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3 is connected with nut 4 by the electromagnetic clutch 11 which is engaged according to the test program. Nut 4 is fastened to the support 12 which can be adjusted according to the length of specimen 13. The mechanism of measurement is based on an automatic decimal balance in which the sliding weight is replaced by a spring with constant tension to reduce inertia. The upper clamp 14 transmits the deformation power to the short lever arm of balance 15. The carriage 16 with spring 17 which is connected with carriage 18 slides on the long lever arm. Carriage 18, in turn, slides on the fixed guide bar 19. The two carriages are connected with the armatures 21 of two electromagnetic clutches by means of the steel bands 20. These clutches rotate in opposite directions and are engaged by means of contacts 22. In the state of equilibrium, the end of the lever of 15 lies between contacts. The clutches are driven via shaft 6, communicator 10, shaft 23, and reducing gear 24. The recording is made by the pencil 25 fastened to the carriage 16 and sliding on drum 26 which is driven by shaft 3 via reducing gear 27 and electromagnetic clutch 28. The dimensions of the diagram can be varied by the reducing gear 27. The clutches of the machine are fed by the rectifier 29. 30 are the terminal switches for switching off the machine as soon as maximum

deformation and load are attained. The machine is controlled by tumbler switches mounted on the switchboard 31. There are 2 figures and 1 Soviet reference.

ASSOCIATION: Chelyabinskiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva (Chelyabinsk Institute for Rural Mechanization and Electrification)

Fig. 1. Basic diagram of the tensile testing machine.

37069
S/057/62/032/004/015/017
B116/B102

11.6300

AUTHORS: Kunin, N. F., Kunin, V. N., and Grishkevich, A. Ye.

TITLE: Thermal ionization in the gasoline flame

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 4, 1962, 485-487

TEXT: Ionization in the gasoline flame at 1100-1700°K was investigated. The flame resistance was measured perpendicular to the gas current. The air compressed in compressor 1 (Fig. 1) was conveyed to combustion chamber 2 (with 1.05-1.12 atm excess pressure). By compressed air (compressor 6), gasoline Б-70 (B-70) was injected from container 3 into the air conduit between compressor 1 and combustion chamber 2. The flow rate was about 120 m/sec. A transverse magnetic field of up to 7500 oe was generated with electrodes between pole shoes 4. The resulting transverse emf E was taken off by means of graphite plates 5, which were also used to measure the electrical resistance. Automatic electronic potentiometers and bridges with suitable pickups were used to measure the flame temperature T between the plates, the air consumption, G, per second, the gasoline consumption, D_B, per second, and the pressure, p,

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Thermal ionization in the gasoline ...

in the combustion chamber. The resistance, R, of the flame between the plates was found to depend on T as

$$R = CT^{-3/4} e^{\frac{U}{2kT}} \quad (5).$$

C is a constant, and U is the activation energy of ionization. The activation energy was determined from the slope of Eq. (5), which is represented as a straight line. It amounts to 1.09 ev, and is thus closest to the formation and decay energies of negative oxygen ions. There are 3 figures. The most important English-language reference reads as follows: A. Cherman. ARS J., 30, no. 6, 41, 1960.

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut
(Chelyabinsk Polytechnic Institute)

SUBMITTED: January 28, 1961 (initially)
April 5, 1961 (after revision)

Card 2/2

KUNIN, N.F.; KUNIN, V.N.; GRISHKEVICH, A.Ye.; KORENCHENKO, Ye.S.

Energy absorption by copper during small deformations. Fiz. met. i metalloved. 17 no.5:789-792 My '64.

(MIRA 17:9)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina.

L 26628-66 EWT(1)/T IJP(c) AT

ACC NR: AP6013913 SOURCE CODE: UR/0207/66/000/002/0021/0024

AUTHOR: Kunin, V. N. (Chelyabinsk); Pisarev, N. M. (Chelyabinsk)

ORG: none

TITLE: Electron conductivity of a thermoionized gas in an electric field

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, 1966, 21-24

TOPIC TAGS: plasma conductivity, ionized gas, free path, electron collision, electron flow, gas conduction, free electron

ABSTRACT: The authors study electron conductivity of a thermoionized gas in an electric field. The electron conductivity of the gas is calculated by using Drude's method and considering the drift of electrons in determining their travel time. The following are given: free electron concentration, the mean effective cross section of their collisions and their mean free path. It is assumed that these quantities have a spatially isotropic distribution in the gas and are independent of time. It is further assumed that the macroscopic parameters for the state of the gas are given. The conductivity problem reduces to finding the mean drift rate of the electrons. It is shown that kinematic relationships may be used for determining conductivity without knowing the distribution function. A model is set up in which a gas particle is surrounded by a sphere of given radius. Free electrons within this sphere drift under the effect of a field which is parallel to the axis and where the electrons are scat-

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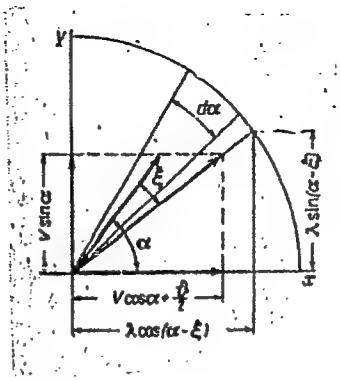
L 26628-66

ACC NR: AP6013918

tered by a particle. After scattering, the electrons travel in the field along curved trajectories resulting in electron-ion and electron-molecule collisions. Since molecules and ions have large masses, their motion in a weak field does not depend on field intensity. Therefore the motion of electrons is limited only by the surface of the sphere. In the case of weak fields, it may be assumed that electron scattering intensity is nearly equal in all directions. An expression is given for calculating the electron drift rate within a given sphere. An improved classical formula for calculating conductivity is given. Orig. art. has: 1 figure, 12 formulas.



SUB CODE: 20/ SUBM DATE: 28Sep65/ ORIG REF: 003/ OTH REF: 001

Card 2/2

KUNIN, V. N.

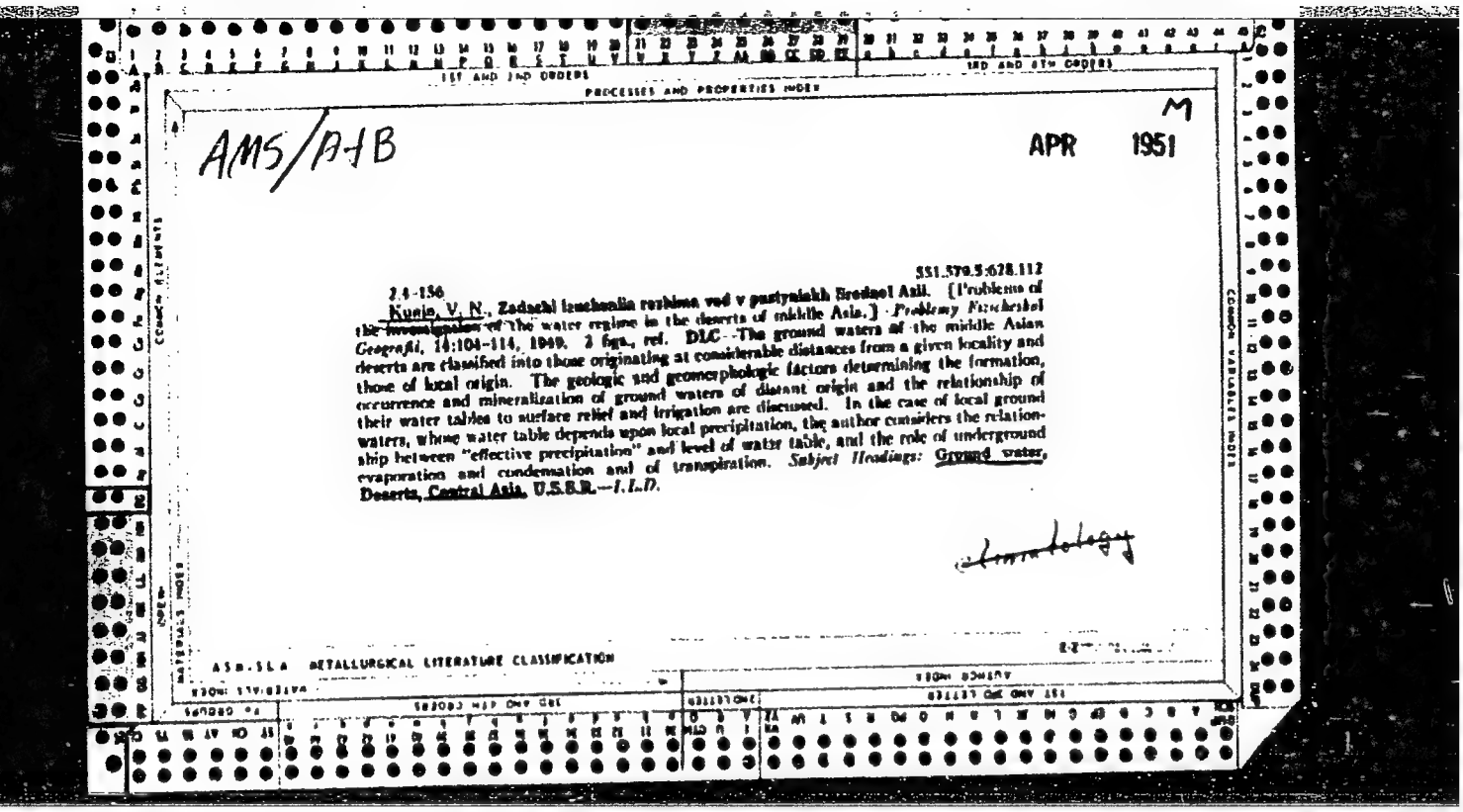
"The Structure of Lowland Karakumy," Dokl. AN SSSR, 51, No.9, 1946

Inst. Geography, AS USSR

KUNIN, V. N.

"Depth of Physical and Geographical Reaction Under Sandy Desert Conditions," Geog. i Geofiz., 12, No.1, 1948

Inst. Geography, AS USSR



AMS/A+B

M

APR 1951

551.579.5:628.112

24-156

Kuzin, V. N., Zadachi izucheniia rezhima vod v pustyniakh Srednei Azii. [Problems of the investigation of the water regime in the deserts of middle Asia.] *Problemy Fizicheskoi Geografii*, 14:104-114, 1949. 2 figs., ref. DLC—The ground waters of the middle Asian deserts are classified into those originating at considerable distances from a given locality and those of local origin. The geologic and geomorphologic factors determining the formation, occurrence and mineralization of ground waters of distant origin and the relationship of their water tables to surface relief and irrigation are discussed. In the case of local ground waters, whose water table depends upon local precipitation, the author considers the relationship between "effective precipitation" and level of water table, and the role of underground evaporation and condensation and of transpiration. *Subject Headings:* Ground water, Deserts, Central Asia, U.S.S.R.—*I.L.D.*

Limnology

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1. KUNIN, V. N.

2. USSR (600)

4. Geology and Geography

7. Kara-kum Records, V. N. Kunin. (Moscow, Geography Press, 1950)
Reviewed by B. A. Fedorovich, Sov. Kniga, No. 9, 1951.

9. [redacted] Report U-3081, 16 Jan. 1953. Unclassified.

GRIGOR'YEV, A. A.; GERASIMOV, I. P.; DOSKACH, A. G.; KAMANIN, L. G.; KUNIN, V. N.; LAVRENKO, Ye. M.; MURZAYEV, E. M.; RIKHTER, G. D.; CHUBUKOV, A. N.; FORMOZOV, A. N.

KUNIN, V. N.

Problemy Fizicheskoy Geofrafii (Problems of Physical Geography), Vol. 16, Symposium, Moscow, 1951.

U-1483, 25 Sept 51

1. GAYEL', A. G.; KUNIN, V. N.

2. USSR (600)

4. Geology and Geography

7. The Field-Forest Improvement of Sands in the Deserts and Semideserts of the USSR, M. P. Petrov, D. L. Margolina (bibliographic editress). (Bibliography of literature in the Russian language, 1768 - 1950. Academy of Sciences of Turkmen SSR Library of Academy of Sciences of the USSR. Leningrad State Pedagogic Institute imeni M. N. Pokrovskiy. Ashkhadab. Acad Sci Turkmen SSR Press, 1952). Reviewed by A. G. Gayel' and V. N. Kunin, Sov. Kniga, No. 11, 1952.

9. [redacted] Report U-3081, 16 Jan 1953, Unclassified.

KUNIN, V. N.

Main Turkmen Canal

Popular books about the Main Turkmen Canal. Reviewed by V. N. Kunin. Izv. AN SSSR Ser. geog. No. 3, 1952.

Monthly List of Russian Accessions, Library of Congress, July, 1952. Unclassified.

YAMNOV, A.A.; KUNIN, V.N.

Some theories resulting from the most recent investigations in the region of the Uzboy in the fields of paleogeography and geomorphology. Izv.AN SSSR Ser. geog. no.3:21-28 My-Je '53. (MLRA 6:9)
(Uzboy region--Physical geography) (Physical geography--Uzboy region)

SHUL'TS, V.L. [author]; KUNIN, V.N.; IVERONOVA, M.I. [reviewers].

"Melting of snowflakes (exemplified in the Bol'shoy Chimgan region)." V.L. Shul'ts. Reviewed by M.I.Iveronova and V.N.Kunin. Izv.AN SSSR Ser.geog. no. 4:106-108 Jl-Ag '53. (MLRA 6:8)
(Bol'shoy Chimgan region--Snow) (Snow--Bol'shoy Chimgan region)

KREMENSKOY, Aleksandr Aleksandrovich; KUNIN, V.N., doktor geograficheskikh nauk, redaktor; ASOYAN, M.S., redaktor; RIVINA, I.N., tekhnicheskiy redaktor.

[In Transcaspian territory] V Zakaspii. Moskva, Gos. izd-vo geogr. lit-ry, 1954. 126 p. (MLRA 7:12)
(Turkmenistan--Phytogeography) (Turkmenistan--Description and travel)

KUNIN, V. N.

USSR/Agriculture - Irrigation

Card 1/1 Pub. 77 - 2/23

Authors : Kunin, V. N., Mem. Corresp. of the Acad. of Sci. of the Turkmen SSR

Title : Across the Kara-Kum sands

Periodical : Nauka i Zhizn' 21/10, 5-6, Oct 1954

Abstract : The problems of raising cotton by irrigation in the desert regions of the Turkmen SSR are discussed. A description is given of a canal linking the Murgab and Tedzhen rivers that the Soviet Government has constructed in order to improve irrigation and produce more cotton. Illustrations.

Institution : ...

Submitted : ...

KUNIN, V.N., doktor geograficheskikh nauk, redaktor; VOLYNSKAYA, V.Š., redaktor; ZEMLYAKOVA, T.A., tekhnicheskiy redaktor.

[Outline of the nature of the Kara Kum Desert] Ocherki prirody Kara-Kumov. Moskva, Izd-vo Akademii nauk SSSR, 1955. 398 p. (MLRA8:12)

1. Chlen-korrespondent Akademii nauk Turkmenskoy SSR (for Kunin)
2. Akademiya nauk SSSR. Institut geografii.
(Kara-Kum--Physical geography)

KUNIN, V.N.

Some results and prospects in scientific research on reclamation in the Kara Kum. Izv.AN Turk.SSR no.3:33-38 '55. (MLRA 9:5)

1. Institut geologii AN Turkmenskoy SSR.
(Kara Kum--Reclamation of land)

Kunin V.N.

USSR/ Engineering - Irrigation works

Card 1/1 Pub. 86 - 4/37

Authors : Kunin, V. N., Memb. Corresp. Acad. Sc., Turkmen SSR.

Title : Kara-Kum canal

Periodical : Priroda 44/4, 29 - 40, Apr 1955

Abstract : An account is given of the work going on in the excavation of the Kara-Kum canal. An analysis is made of the sources of the water and the land formations which can be flooded by gravitation together with the quality of the soil suitable for agriculture. A description is given of what has already been accomplished in [illegible] the Kara-Kum desert where [illegible] hectares are [illegible]

Institution : .....

Submitted : .....

GERASIMOV, I.P.; ARMAND, D.L.; BUDYKO, M.I.; DAVITAYA, F.F.; DZERDZEYEVSKIY, B.L.; KUNIN, V.N.; L'VOVICH, M.I.; RIKHTER, G.D.; SHEVTSOV, P.F.

Thermal and hydrological regime of the earth's surface, its role in the dynamics of natural processes, geographical differences, and methods of transforming it for practical purposes. Izv.AN SSSR.Ser.geog. no.4: 47-59 Jl-Ag '56. (MLRA 9:10)
(Hydrology)

KUNIN, V.N.

Popov, I.V

3(4,5) PHASE I BOOK EXPLOITATION SOV/1655

Akademiya nauk SSSR. Komitet po geodezii i geofizike.

Tezisy dokladov na XI General'noy assamblaye Mezhdunarodnogo geodezicheskogo i geofizicheskogo soyuza. Mezhdunarodnaya assotsiatsiya nauchnoy gidrologii (Abstracts of Reports Submitted to the 11th General Assembly of the International Union of Geodesy and Geophysics. The International Association of Scientific Hydrology) Moscow, 1957. 101 p. /Parallel texts in Russian and English or French/ 1,500 copies printed.

No additional contributors mentioned

PURPOSE: This booklet is intended for hydrologists and civil engineers.

COVERAGE: This collection of abstracts covers reports presented at the 11th General Assembly of the International Union of Geodesy and Geophysics on hydrological, erosional, and glaciological processes. Studies related to problems of underground waters, snow, and rivers are also discussed. The abstracts are in Russian, with English or French translations. Those appearing in English are designated by a single asterisk; those in French by two. There are no references given.

Card 1/4

Card 3/4

GRAVE, Mikhail Konstantinovich; KUNIN, V.N., doktor geograficheskikh nauk, otvetstvennyy red.; BIRINA, A.V., red.izd-va; VOLYNSKAYA, V.S., red.izd-va; MOSKVICHEVA, N.I., tekhn.red.

[North foothill plain of Kopet Dagh; its origin, relief and elements of its hydrogeology] Severnaia podgornaia ravnina Kopet-Daga; proiskhozhdenie, rel'ef i elementy gidrogeologii. Moskva, Izd-vo Akad.nauk SSSR, 1957. 137 p. (Trudy Aralo-Kaspiiskoi kompleksnoi ekspeditsii, no.9) (MIRA 11:1)
- - - - - - [Supplement] 3 maps (6 l.)
(Kopet Dagh--Geology)

Call No: None given

Freykin, Zakhar Grigor'yevich

Turkmenskaya SSR; ekonomiko-geograficheskaya kharakteristika (Turkmenskaya SSR; Economic and Geographical Features) [2d ed., rev. and enl.] Moscow, Geografgiz, 1957, 450 pp., 8,000 copies printed.

Ed: Dobronravova, A.O.; Tech. Ed.: Nogina, N.I.; Map Ed.: Chentsova, V.A.

Resp. Ed.: Kunin, V.N., Corresponding Member, Academy of Sciences, Turkmenskaya SSR, Doctor of Geographical Sciences

PURPOSE: The purpose of the book is to provide convenient reference on the Turkmenskaya SSR and its economic and social problems. The book is intended for economists, teachers and students of geography.

~~COVERAGE: See Table of Contents.~~

~~Card 1/3~~

Call No. None given

Turkmen SSR; Economic and Geographical Features (Cont.)

COVERAGE: The book is divided in two parts: the first deals with the Republic as a whole and the second describes the individual oblasts. These, in turn, are divided into their organic economic regions (units). The analysis of geographical features predominates in the book, although the first part also provides the reader with an historical background. The industries of this Republic have developed along the railways, the rivers and the coast, with 40 per cent of the manufacturing located at Ashkhabad, the capital. The only exceptions to this rule are the sulphur mines and plant at Sernyy Zavod and Darvaza, in the middle of the Karakumy desert. Kara-Bogaz-Gol enterprises strip mirabilite (glauber salt) from the bottom of evaporated marshy lakes, but the development of local industries is hampered by lack of fresh water. Another group of industries along the Caspian shore comprises Cheleken iodine, bromine, ocher, and oil and ozocerite enterprises. The oil and natural gas region is located mainly south of the Krasnovodsk-Ashkhabad railway.

Card 5/7

Turkmen SSR; Economic and (Cont.) Call No: None given

The petroleum industry of the Republic shows marked progress and oil derricks, scattered in the barren desert, are steadily growing in number; Nebit-Dag is the Turkmen oil capital. In 1956 the Republic produced 3,430,000 tons of oil. A pipeline leads from Vyshka to the Krasnovodsk refinery; a natural gas pipeline to Krasnovodsk is under construction. During the earthquake of 1948, the worst in Turkmen history, Ashkhabad's industrial enterprises, administrative and residential buildings and railway station were destroyed. The earthquake claimed thousands of victims. The restoration of the city's industrial enterprises is described to some extent. To-day the city numbers 142,000 inhabitants. One of the engineering plants manufactures petroleum equipment. A cement plant was built at Bezmein, which is practically a suburb of Ashkhabad. The city produces silk, cotton textile, shoes, and meat products. Tables show areas under crop cultivation, with special emphasis on cotton; the irrigation network is being expanded. Cotton grows in the area of Chardzhou and along the Murgab River. Sheep and dromedars are included in animal husbandry. Most electricity (94.5 per cent) come from oil-burning steam-power stations, although the book mentions a series of hydro-electric installations on the Murgab River.

Card 6/8

3

Turkmen SSR; Economic and (Cont.) Call No: None given

Semi-anthracite is being mined on an industrial scale at Kugitang, although the Republic has other coal and brown-coal reserves, thus far little exploited. In addition to Darvaza and Sernyy Zavod, there is another sulphur-winning area near Gaurdak. Recently the large railway project linking Chardzhou with Kungrad was completed. The Karakum Canal is to-day's largest construction job and the gigantic scheme of the great Turkmen Canal is not discussed. There are 65 photographs (a dozen illustrate Turkmen industries), 30 maps, 20 tables, and 155 Soviet references.

AVAILABLE: Library of Congress

Card 7/9
4

KUNIN, V.N.

Some results of the study of ground water in deserts. Izv. AN SSSR. Ser. geog. no.5:91-103 S-O '57. (MIRA 11:2)
(Water, Underground)

Kunin, V. N.

126-1-30/40

AUTHORS: Kunin, N. F. and Kunin, V. N.

TITLE: Influence of the stresses on the thermal expansion of a deformed metal. (Vliyaniye napryazheniy na teplovoye rasshireniye deformirovannogo metalla).

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol.5, No.1, pp. 173-174 (USSR)

ABSTRACT: The reversibility of elastic deformation and of thermal expansion permits considering the simultaneous effect of these phenomena on the basis of generally valid thermodynamic relations. Khvol'son, O. D. (Ref.1) derived the following formula inter-relating the coefficient thermal expansion α with the applied stress:

$$\left(\frac{\partial\alpha}{\partial\sigma}\right)_T = \frac{1}{E^2}\left(\frac{\partial E}{\partial T}\right)_\sigma \qquad (1)$$

where E is the Young modulus and T is the temperature of the deformed substance. For a given temperature the right-hand side of this equation is constant and by integration the following linear dependence is obtained between the coefficient of thermal expansion and the

Card 1/4

Influence of the stresses on the thermal expansion of a deformed metal.

stress:

$$\alpha = \alpha_o + c\sigma, \qquad (2)$$

α_o being the coefficient of linear expansion in absence of stresses. Rosenfield, A.K. and Averbach, B.L.(Ref.2) discovered a jump-like deviation of the coefficient of expansion α from linearity when passing through the limit of elasticity. The experiments were carried out with three grades of steel and two grades of invar. The change of the coefficient of expansion α, caused by the plastic deformation,was the residual one. After removing the stress, the coefficient of expansion had another value differing from the original value. These authors did not consider the important problem on whether Eq.(2) is valid for work hardened metal. It is known that the limit of elasticity of a metal which is subjected to plastic deformation increases to a value corresponding to the applied load provided that the temperature of deformation is sufficiently low and that no relaxation effects take place. As a result of that,

 repeated deformation of a preliminarily work hardened

Influence of the stresses on the thermal expansion of a deformed metal.

metal up to loads corresponding to the new limit of elasticity are reversible and Eq.(2) should be fulfilled. Thereby the values of α and c should become different to some extent owing to the changes caused by the plastic deformations. Independently of the work of Rosenfield and Averbach and approximately at the same time the authors of this paper measured the coefficient of linear expansion of copper under load. The copper was subjected to considerable preliminary work hardening. Special measuring equipment enabled measurement of the coefficient α with an accuracy of up to 0.2 to 0.3%; the thermal expansion was effected in the temperature range 14.98 to 41.48°C. The elongation as a result of the load and the thermal expansion was measured by optical means and the results are graphed in Fig.1 (10^5 α/°C vs. σ,kg/mm^2). It can be seen that within the limits of the here mentioned accuracy of the experiments, the coefficient of thermal expansion increases linearly with increasing stresses in accordance with Eq.(2). Since during work hardening the Young modulus E remains practically unchanged, it follows from Eq.(1) that the changes in α_o

Influence of the stresses on the thermal expansion of a deformed metal.

and c during work hardening are due to a temperature dependence of the Young modulus. In conclusion it is pointed out that the problem of thermal expansion of loaded metals is of great practical importance, particularly from the point of view of the theory of tolerances and settings.
There are 1 figure and 2 references, 1 of which is Slavic.

(Note: This is a complete translation).

SUBMITTED: November 20, 1956.

ASSOCIATION: Chelyabinsk Institute of Mechanisation and Electrification of Agriculture. (Chelyabinskiy Institut Mekhanizatsii i Elektrifikatsii S-Khoz.).

AVAILABLE: Library of Congress.

KUNIN, V.N.

GELLER, S.Yu.; ZIMINA, R.P.; KEMMERIKH, A.O.; KUNIN, V.N.; KUVSHINOVA, K.V.; MURZAYEV, E.M., doktor geograf.nauk; RYAZANTSEV, S.N.; FORMOZOV, A.N.; FREYKIN, Z.G.; CHUBUKOV, L.A.; ZABIROV, R.D.; KOROVIN, Ye.P.; ROZANOV, A.N.; RODIN, L.Ye.; RUBTSOV, N.I.; SPYGINA, L.I., red. izd-va; POLENOVA, T.P., tekhn.red.

[Central Azia; its physical geography] Sredniaia Aziia; fiziko-geograficheskaia kharakteristika. Moskva, 1958. 647 p. (MIRA 11:6)

1. Akademiya nauk SSSR. Institut geografii. 2. Institut geografii Akademii nauk SSSR (for Geller, Zimina, Kemmerikh, Kunin, Kuvshinova, Murzayev, Ryazantsev, Formozov, Freykin Chubukov). 3. Akademiya nauk Kirgizskoy SSR (for Zabirov). 4. Akademiya nauk Uzbekskoy SSR (for Korovin). 5. Pochvennyy institut AN SSSR (for Rozanov). 6. Botancheskiy institut AN SSSR (for Rodin). 7. Akademiya nauk Kazakhskoy SSR (for Rubtsov)
(Soviet Central Asia--Physical geography)

Kunin, V.N.

AUTHOR: Kunin, V.N.

12-1-23/26

TITLE: None Given

PERIODICAL: Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva, 1958, # 1, pp 99 - 101, (USSR)

ABSTRACT: The article deals with a new book on Asia, "The Foreign Asia" (Zarubezhnaya Aziya), composed by a collective of authors. This work gives a more or less complete picture of the physical geography of foreign Asia and its separate regions. There is also a most interesting historical-political review of the Asiatic states. The book makes a good impression inspite of some minor deficiencies.

AVAILABLE: Library of Congress

Card 1/1

KUNIN, V.N.

"Non-Soviet parts of Asia; physical geography" by D.L. Armand and others. Reviewed by V.N. Kunin. Izv. Vses. geog. ob-va 90 no.1: 99-101 Ja-F '58. (MIRA 11:4)

(Asia—Physical geography)
(Armand, D.L.)

DEREVYANKO, Pavel Andreyevich; POGOREL'SKIY, P.V., [deceased], doktor ekon. nauk, otv. red.; KUNIN, V.N., doktor geogr. nauk; FILIPPOVA, B.S., red. izd-va; NOVICHKOVA, N.D., tekhn. red.

[Rural water supply in the Mongolian People's Republic] Sel'skokhoziaistvennoe vodosnabzhenie Mongol'skoi Narodnoi Respubliki. Izd-vo Akad. nauk SSSR, 1959. 130 p. (Akademiia nauk SSSR. Laboratoriia gidrogeologicheskikh problem. Trudy, vol.21) (MIRA 12:12)

(Mongolia--Water supply, Rural)

KUNIN, Vladimir Nikolayevich; GELLER, S.Yu., doktor geograf.nauk, otv. red.; VOLYNSKAYA, V.S., red.izd-va; KASHINA, P.S., tekhn.red.

[Local water supply in deserts and problems in using it] Mestnye vody pustyni i voprosy ikh ispol'zovaniia. Moskva, Izd-vo Akad.nauk SSSR, 1959. 281 p. (MIRA 12:5)
(Water supply) (Deserts)

KUNIN, V.N.; LESHCHINSKIY, G.T.; L'VOVICH, M.I., prof., doktor geograf. nauk, otv.red.; VOLYNSKAYA, V.S., red.izd-va; MARKOVICH, S.G., tekhn.red.

[Temporary surface runoff and artificial formation of ground waters in the desert] Vremennyi poverkhnostnyi stok i iskusstvennoe formirovanie gruntovykh vod v pustyne. Moskva, Izd-vo Akad.nauk SSSR, 1960. 156 p.

(MIRA 14:2)

(Turkmenistan--Hydrology)